LSC 452 - MOLECULAR BIOLOGY

1. Macromolecules – DNA and RNA, their Structure, Conformation, Denaturation, Renaturation.
2. Chromatin structure, nucleosome.
3. Genes and genome organisation.
4. Transposons and retro-transposons.
5. DNA replication mechanisms in prokaryotes and eukaryotes.
6. RNA world and RNA replication.
7. Mechanisms of transcription in prokaryotes and eukaryotes.
8. RNA processing, capping, polyadenylation, splicing, and editing.
9. Genetic code and translation.
10. Transcriptional regulation in prokaryotes and eukaryotes.
11. Translational regulation, post-translational modifications.
12. Epigenetics, gene silencing, RNA interference.
13. Recombinant DNA technology, transgenic systems, yeast two-hybridization, chip analysis.

Suggested Readings

1. Genes X - by Benjamin Lewin
2. Molecular Biology of the Gene - by Watson et al.
3. Molecular Cell Biology- by Lodish et al
4. Molecular Biology of the Cell - by Bruce Alberts et al.